What is claimed is:

1. A brushless motor comprising a rotor having a magnet with an axial length of L_M and a stator having a stator core provided with a plurality of teeth arranged peripherally vis-à-vis said magnet with an air gap interposed between them and said magnet and having auxiliary grooves formed at the front ends thereof,

the axial length L_s of said stator core being greater than the axial length L_M of said magnet ($L_s > L_M$).

2. A brushless motor according to claim 1, wherein

said stator core is provided with overhanging portions thereof that are not vis-à-vis the magnet but axially outstanding from the respective axial ends of the magnet.

3. A brushless motor according to claim 2, wherein

the overhanging portions have an axial length X between 0.5 mm and 8.0 mm.

4. A brushless motor according to claim 1 , wherein

the center of each of said auxiliary grooves of each of said teeth is located on a radial line prolonged from the corresponding circumferential end face of the teeth.

5. A brushless motor according to claim 1, wherein

said auxiliary grooves are made to have a width equal to the width of the slots separating adjacent teeth.

6. A brushless motor according to claim 1, adapted to be used as drive source of an electric power steering device.